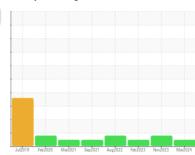


OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id
4022L
Component
Diesel Engine
Fluid
MOBIL 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

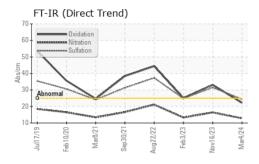
Fluid Condition

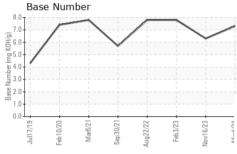
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

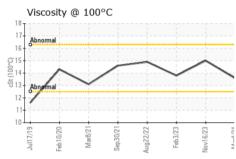
Sample Number			Jul2019 1	eb 2020 Mar 2021 Sep 20	21 Aug2022 Feb2023 Nov2023	Mar2024	
Sample Date Client Info 04 Mar 2024 16 Nov 2023 03 Feb 2023 Machine Age mis Client Info 284141 267870 242514 Oil Age mis Client Info 15000 25256 0 Oil Changed Client Info Changed N/A N/A Sample Status Medical Control of Changed N/A N/A N/A CONTAMINATION method limit/base current bistory1 bistory2 Fuel WC Method >5 <1.0	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 04 Mar 2024 16 Nov 2023 03 Feb 2023 Machine Age mils Client Info 284141 267870 242514 Oil Age mls Client Info 150000 25256 0 Oil Changed Client Info Changed N/A N/A Sample Status Image: Info Changed N/A N/A CONTAMINATION method limit/bass current history1 history2 Fuel WC Method >0.2 NEG NEG NEG NEG Water WC Method >0.2 NEG NEG NEG NEG Water WC Method >0.0 53 109 67 WEAR METALS method limit/bass current history1 history2 Iron ppm ASTM D5185m >100 53 109 67 WEAR METALS method limit/bass current history1 history2 Iron ppm <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>IL0025787</th> <th>IL06026242</th> <th>IL0025816</th>	Sample Number		Client Info		IL0025787	IL06026242	IL0025816
Machine Age mls Client Info 284141 267870 242514 Oil Age mls Client Info 15000 25256 0 Oil Changed Client Info Changed N/A N/A Sample Status method Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history2 leg Iron ppm ASTM D5186m >100 53 \$109 67 Chromium ppm ASTM D5186m >20 2			Client Info		04 Mar 2024	16 Nov 2023	03 Feb 2023
Oil Age mls Client Info 15000 25256 0 Oil Changed Sample Status Client Info Changed N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	•	mls	Client Info		284141	267870	242514
Sample Status		mls	Client Info		15000	25256	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5186m >100 53 109 67 Chromium ppm ASTM D5186m >20 2 2 2 2 Nickel ppm ASTM D5186m >4 1 0 0 0 Silver ppm ASTM D5186m >3 0 0 0 0 Silver ppm ASTM D5186m >30 2 3 1 1 0 0 0 Lead ppm ASTM D5186m >30 2 3 1 1 3 1 1	Oil Changed		Client Info		Changed	N/A	N/A
Fuel	Sample Status				NORMAL	ABNORMAL	NORMAL
Water Glycol WC Method Glycol NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 53 ▲ 109 67 Chromium ppm ASTM D5185m >20 2 2 2 Nickel ppm ASTM D5185m >4 1 0 0 Sliver ppm ASTM D5185m >4 1 0 0 Sliver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 9 11 8 Lead ppm ASTM D5185m >330 2 3 1 Tin ppm ASTM D5185m >15 1 0 0 Cadmium ppm ASTM D5185m <1	CONTAMINATION	J	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 53 ▲ 109 67 Chromium ppm ASTM D5185m >20 2 2 2 Nickel ppm ASTM D5185m >20 2 2 2 Nickel ppm ASTM D5185m >20 9 11 0 0 Silver ppm ASTM D5185m >3 0 0 0 0 Aluminum ppm ASTM D5185m >20 9 11 8 1 Lead ppm ASTM D5185m >20 9 11 8 1 Lead ppm ASTM D5185m >40 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 2 2 2 2 Nickel ppm ASTM D5185m >4 1 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >40 <1 0 0 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >40 <1 0 0 Vanadium ppm ASTM D5185m >15 1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m <1 2 0 Molybdenum ppm ASTM D5185m <1 2 0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	53	△ 109	67
Titanium ppm ASTM D5185m <1 <1 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 9 11 8 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >330 2 3 1 Tin ppm ASTM D5185m >15 1 0 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 2 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m <1 0 1 3 Barium ppm ASTM D5185m 68 74 63 4 Magnesium ppm	Chromium	ppm	ASTM D5185m	>20	2	2	2
Silver	Nickel	ppm		>4	1		0
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	0
Lead	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 2 3 1 Tin ppm ASTM D5185m >15 1 0 0 Vanadium ppm ASTM D5185m <1	Aluminum	ppm	ASTM D5185m	>20	9	11	8
Tin ppm ASTM D5185m >15 1 0 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 3 Barium ppm ASTM D5185m <1 2 0 Molybdenum ppm ASTM D5185m 68 74 63 Manganese ppm ASTM D5185m 1053 1096 932 Calcium ppm ASTM D5185m 1179 1236 1205 Phosphorus ppm ASTM D5185m 1130 1060 1031 Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 </td <td>Lead</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th><1</th> <td></td> <td>0</td>	Lead	ppm	ASTM D5185m		<1		0
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 3 Barium ppm ASTM D5185m <1 2 0 Molybdenum ppm ASTM D5185m 68 74 63 Manganese ppm ASTM D5185m 1 0 <1 Magnesium ppm ASTM D5185m 1053 1096 932 Calcium ppm ASTM D5185m 1179 1236 1205 Phosphorus ppm ASTM D5185m 1130 1060 1031 Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><th>2</th><td>3</td><td></td></th<>	Copper	ppm	ASTM D5185m	>330	2	3	
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 3 Barium ppm ASTM D5185m <1		ppm		>15			
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 3 Barium ppm ASTM D5185m <1	Vanadium	ppm					
Boron	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 68 74 63 Manganese ppm ASTM D5185m 1 0 <1 Magnesium ppm ASTM D5185m 1053 1096 932 Calcium ppm ASTM D5185m 1179 1236 1205 Phosphorus ppm ASTM D5185m 1130 1060 1031 Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td>1</td> <td>3</td>	Boron	ppm	ASTM D5185m		0	1	3
Manganese ppm ASTM D5185m 1 0 <1 Magnesium ppm ASTM D5185m 1053 1096 932 Calcium ppm ASTM D5185m 1179 1236 1205 Phosphorus ppm ASTM D5185m 1130 1060 1031 Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration<	Barium	ppm	ASTM D5185m		<1	2	0
Magnesium ppm ASTM D5185m 1053 1096 932 Calcium ppm ASTM D5185m 1179 1236 1205 Phosphorus ppm ASTM D5185m 1130 1060 1031 Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm *ASTM D7415 >30 24.4 31.5 24.8	Molybdenum	ppm	ASTM D5185m		68	74	63
Calcium ppm ASTM D5185m 1179 1236 1205 Phosphorus ppm ASTM D5185m 1130 1060 1031 Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/:nm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1	Manganese	ppm	ASTM D5185m		1	0	<1
Phosphorus ppm ASTM D5185m 1130 1060 1031 Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm *ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current		ppm					
Zinc ppm ASTM D5185m 1349 1389 1256 Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % "ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm "ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm "ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm "ASTM D7414 <		ppm				1236	1205
Sulfur ppm ASTM D5185m 3310 3468 2885 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 1 history1 history2 Soot % % "ASTM D7624" >3 1.2 1.6 0.8 Nitration Abs/.1mm *ASTM D7624 >20 12.8	•	ppm					
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm *ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0		ppm					
Silicon ppm ASTM D5185m >25 9 17 6 Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm *ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0			ASTM D5185m		3310	3468	2885
Sodium ppm ASTM D5185m >118 2 2 2 Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm *ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0	CONTAMINANTS		method				
Potassium ppm ASTM D5185m >20 9 15 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm *ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0							
INFRA-RED							
Soot % % *ASTM D7844 >3 1.2 1.6 0.8 Nitration Abs/cm *ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0	Potassium	ppm	ASTM D5185m	>20	9	15	8
Nitration Abs/cm *ASTM D7624 >20 12.8 16.4 13.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 24.4 31.5 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0							
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0		Abs/cm		>20	12.8		
Oxidation Abs/.1mm *ASTM D7414 >25 22.3 33.1 25.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	24.4	31.5	24.8
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 7.3 6.3 7.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	22.3	33.1	25.0
	Base Number (BN)	mg KOH/g	ASTM D2896		7.3	6.3	7.8

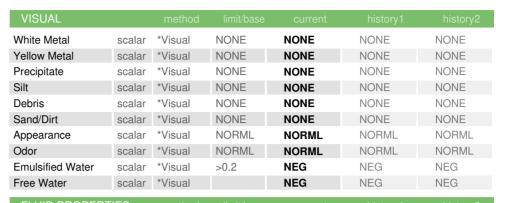


OIL ANALYSIS REPORT



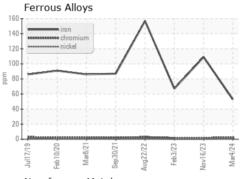


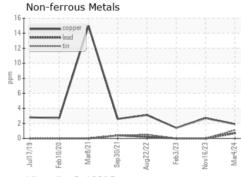


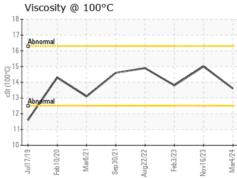


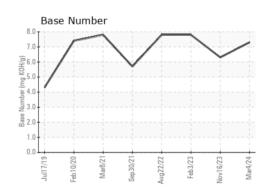
FLUID PROPER	RIIES	method		history1	history2
Visc @ 100°C	cSt	ASTM D445	13.6	15.0	13.8

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : IL0025787 Lab Number : 06142819

Unique Number : 10967627 Test Package : FLEET

Received **Tested**

: 10 Apr 2024 Diagnosed

: 10 Apr 2024 - Wes Davis

: 09 Apr 2024

US 60638 Contact: MIKE LINLEY linleym@rushtruckcenters.com

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

T: (708)496-7500 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (708)496-8818

RUSH TRUCK CENTER - CHICAGO IDEALEASE

4655 SOUTH CENTRAL AVENUE

CHICAGO, IL